

An Illustrated Catalogue of the Ethnographical Collection of the Sarawak Museum.

INTRODUCTION.

The nucleus of the ethnographical collection of the Sarawak Museum is a collection made by Mr. Hugh Brooke Low, during the greater part of his service under the Sarawak Government (1869-1886); Mr. Low made full use of his opportunities and got together nearly 500 different objects of ethnographical interest chiefly from the natives of the Rejang and Batang Lupar rivers. The collection was sent to England and for some time was exhibited at the South Kensington Museum. In 1887, however, His Highness the Rajah of Sarawak purchased the collection, and in 1891 it was deposited in the newly-opened Sarawak Museum. To this nucleus have been added by constant additions nearly 1,500 specimens and so recently as 1899 a competent critic was able to assert that the Sarawak Museum contained "the best and most instructive collection of Sarawak ethnography extant" ("Nature" Aug. 31st 1899, p. 415.)

Unfortunately the Museum is but rarely visited by serious students of anthropology and as with the exception of Ling Roth's "Natives of Sarawak and British North Borneo" and one or two papers by Hein (Vienna, 1890), the culture-history of the Borneans has never been adequately pictured, it seemed advisable to compile an illustrated catalogue of this fine ethnographical collection, so that those interested in the natives of Borneo might have some sort of picture of them even if a more personal acquaintance was out of the question.

Even in Sarawak, well-protected as it is against European exploitation, great changes have taken place amongst the natives within the last thirty years; the great incursion of Chinese has

had its effects; the dominant Sea-Dyak has increased enormously in the Rejang River, driving the Kyan, Kanowit and other tribes less robust than himself before him, so that the ethnographical variety of the chief river of Brooke Low's collecting area is now sadly diminished; finally the influence of the European on the change of native habits must not be left out of account.* The catalogue, then, is not begun a day too soon, reliable information on many specimens must be obtained now, or before many years it may be too late. As it is, the Srus, a tribe apparently allied to the Tanjongs, living near Kalaka, have forgotten all their old customs and culture, a fragmentary language alone remaining to suggest a less ignoble past; whilst the Tanjongs themselves, thanks to the gin-bottle and the immorality of their women are rapidly drawing near to the abyss of extinction. The project of such a catalogue as this was for some time in my mind, but the ways and means of production were difficult to find. However, at the end of 1902 the Council of the Straits Branch of the Royal Asiatic Society generously came to the rescue and the catalogue will be published in parts under their auspices.

The ethnographical collection now to be catalogued cannot claim to be absolutely complete, and there are many specimens scattered amongst European Museums which are unrepresented in the Sarawak Museum. These will be alluded to in the catalogue whenever possible and specimens known to the writer but unrepresented in any museum will also be noted. No particular order in the series of objects described will be observed, but each part will be produced as soon as it is ready. I have been fortunate in securing the collaboration of Dr. C. Hose, Resident of the Baram district, in at least one part of the catalogue and other local authorities have been as generous in supplying me with information as they have been in obtaining specimens for the Museum.

* To give a concrete example of change:—It is no longer easy to obtain specimens of the *niabor* a variety of short sword formerly much in use amongst the Sea-Dyaks, the *jimpul* and *tilang kamarau* are much more common, the former was invented less than 20 years ago, the latter only last year. Numerous other examples might be quoted.

PART I.

Musical Instruments.

BY R. SHELFORD, M. A., F. L. S., ETC.

Curator of the Sarawak Museum.

The musical instruments of the Bornean tribes fall naturally into four main groups:—

1. Stringed instruments.
2. Wind instruments.
3. Jews harps.
4. Instruments of percussion.

They are described in this order. Each group can be subdivided into classes and under the class-headings are described the different 'species' frequently represented by more than one specimen. In addition to describing each specimen fully, I have quoted its number in the Museum catalogue and have recorded how and when it came into the possession of the museum; all measurements are given in centimetres. It will be seen that the Museum is indebted to many friends for valuable specimens; as it would be tedious to detail here all their names, I must express my thanks to them as a collective body; the names of Mr. D. J. S. Bailey, of the Sarawak service and Mr. E. W. Byrde, of the Borneo Co., cannot however pass without special notice, as to these two gentlemen I am indebted not only for many interesting and opportune specimens but also for much valuable information concerning them. My friend Mr. H. Balfour, curator of the Pitts-Rivers Museum, Oxford, has given me much useful advice and help, and his papers on musical instruments have served as models which I fear that nevertheless I have but imperfectly copied.

STRINGED INSTRUMENTS.

There are four main classes of stringed instruments in use amongst the tribes of Borneo* :—

- I. Primitive musical bow—perhaps the progenitor of
- II. Fiddles and guitars.
- III. Upright harps.
- IV. Cylindrical harps.

CLASS I.—PRIMITIVE MUSICAL BOW.

This instrument is used only by the Tanjongs, a small isolated tribe living at Kapit, Rejang River, Sarawak. It consists of a flattened bow (*busoi*) with a rattan string laid across a pot of earthenware or metal, the mouth of the pot being closed by a wooden diaphragm (*aran*); the handle of the bow is grasped in the right hand and the taut bow string is tapped with a short stick held in the left hand; different notes can be produced either by fingering the string or by moving the bow so that different parts of its arc rest on the wooden diaphragm closing the pot. A very fair volume of sound can be produced. Until quite recently no specimens of this interesting musical instrument had found their way to European Museums, but there are now examples in the Anthropological Museums of Oxford and Cambridge Universities. The "Natural History of the Musical Bow" by H. Balfour (Oxford, 1899) should be consulted for a full and detailed account of the geographical distribution and evolution of this primitive type of musical instrument.

* Dr. A. W. Nieuwenhuis figures in "In Centraal Borneo" Vol. II Pl. LVII a Kayan girl beating with a stick on a string stretched longitudinally across a shield and bridged up with two cylindrical wooden plugs at the end; underneath the plate is printed "Het Voordragen van zangen, de overleveringen van den stam, behelzende":—i.e. the overture to a song, delivered by the assembled tribe."

But there is no reference to the illustration in the text and I believe that this is merely an improvised musical instrument, and one seldom in use.

1. Tanjong—*Busoi and Aran.*

a. (Plate I, fig. 1, upper specimen).

The *busoi* is a slightly bowed slat of hard black wood 93.6 cm. long and 4.4 cm. broad about its middle. One end is fretted and moulded and forms the handle, the other end has one border slightly excavated in the way shown in the figure. A strip of split rattan is strung through a hole near the handle and laced through two holes near the other end.

The *aran* is a disc of wood, 28 cm. in diam. with a large hole in the centre: the border for a depth of 2.5 cm. has been sloped down and a dog's tooth pattern is cut in low relief on it, the back ground being stained black with soot or indigo.

Catalogue No. 59. Brooke Low collection.—This specimen has been figured in "The Natives of Sarawak and British North Borneo" by H. Ling Roth, 1886 Vol. II p. 260, and in "The Natural History of the Musical Bow" by H. Balfour (1899) p. 69, fig. 49; the latter illustration is taken from a photograph of this specimen in the possession of Sir Hugh Low.

b. (Plate I, fig. 1, lower specimen).

The *busoi* is of soft white wood, 82.3 cm. long and 4 cm. broad in the middle. The concave side has a geometric pattern cut in bas-relief, the outstanding background being stained red with dragon's blood; the handle is unstained, it is moulded and fretted forming an S-shaped curve; the opposite end has its borders notched and curved, it is stained with dragon's blood and has a rosette (*buah trong*) cut in it. A strip of rattan is strung through a hole near the handle and laced through two holes near the distal end.

The *aran* is a disc of wood 30 cm. in diam. with an incised phyllomorphic pattern surrounding a central rosette; it is not perforated. The rattan *plectrum* is 31 cm. long. The pot over which the *aran* is laid is a common bazaar pot of Chinese make, light-blue in colour and glazed; 22.5 cm. diam.; 13 cm. high.

Catalogue No. 1230. [Hon. H. F. Deshon, [P. i. 03]

CLASS II.—FIDDLES AND GUITARS.

This main class may be subdivided into two sub-classes:—

SARAWAK ETHNOGRAPHICAL COLLECTION.

(A) Fiddles with straight wooden stem transfixing a resonator usually made from a hollowed-out coconut shell or gourd, and with one or more strings. Such are the one stringed *enserunai* of the Sea-Dyaks and the *sigittuad* of the Land-Dyaks and the two- or three-stringed *engkerbap* of the Sea-Dyaks. The performer on any of these instruments sits on the ground and holding the stem of the fiddle in his left hand rests the resonator against the calf of his left leg or else grasps with his toes the part of the stem that projects through the resonator ; the string is sawed with a very simple bow (*pengayat*) held in the right hand ; generally no sound can be produced until the string has been well moistened with saliva and even then the volume of sound is not great. The Sea-Dyaks imitate on the *enserunai* the dirges sung at deaths and at burial.

(B) Guitars, cut out from a solid block of wood, the resonator being hollowed out either from the back or from the front, and with from two to six strings, which are *strummed* with the fingers. Examples of such instruments are found amongst the Kayans, Kenyahs, Malohs, Dusuns, Malays, and Sea-Dyaks, the latter people having probably borrowed from the Malohs. The fiddle figured by Ling Roth i.e. Vol. II, p. 262 is undoubtedly Chinese ; numbers of these are made in Hong-Kong for export and can be bought any day in the Sarawak bazaars. The Malay fiddle figured on p. 266, Vol. II. of Ling Roth's work is Javanese and though the instrument is described as being of Borneo make, it cannot be regarded as typical of Borneo Malays. A very similar specimen bought from a Bugis is in the Raffles Museum, Singapore.

A. FIDDLES.

1. Sea-Dyak—*Enserunai* (Plate I, fig. 2.)

a.—(Second specimen from the left.)

Stem straight, transfixing the resonator and projecting considerably beyond ; the head is flattened and slightly enlarged : its front border notched and moulded. The resonator is half a gourd (*genok selaing*), the bottom is perforated ; a diaphragm of monkey skin is lashed on with a rattan binding and tightened up with wedges (Plate VII, fig. 1). The string which is of rattan

(*rotun sega*) at one end is looped over the part of the stem which projects beyond the resonator and passes from this point of attachment to the lower part of the head of the stem which is deeply grooved longitudinally; the string runs along the groove and out through a hole at the side and is then wound round the head (Plate ^{VII} fig. 2); a notch on each side of the groove is evidently intended for the reception of a cross-bridge. There is no bridge for the string opposite the resonator. A bracing string of grass is present. The bow is of bamboo with a grass string. Total length of fiddle 68 cm.; diameter of resonator 9.5 cm.

Catalogue No. 55. Brooke Low Collection.

b. Stem straight of a hard dark wood, transfixing resonator and projecting considerably beyond. The head is not expanded; the front of the stem has a deep longitudinal groove for the greater part of its length; there are some shallow transverse grooves and incised lines distad and proximad of the longitudinal groove by way of decoration. The resonator is half a gourd, closed by a diaphragm of wood luted on with dammar, the bottom is perforated. The rattan string at one end is looped round the part of the stem that projects beyond the resonator, at the other it is wound round a slip of wood driven transversely through the stem (Plate VII, fig. 3) there are notches on each side of the groove for the reception of a cross-bridge. Two bracing strings of grass. Bow of bamboo; with grass string. Total length 60.5 cm., diam. of resonator 11.5 cm.

Catalogue No. 56. Brooke Low collection. This specimen has been figured by Ling Roth (l. c. Vol. II, p. 260).

c. (1st specimen on right). Stem straight, hemispherical in section, of a brown soft wood, transfixing resonator and projecting considerably beyond it, the head of the stem is enlarged flattened and bent forward at an angle to the stem, each side is carved in low relief with a phylomorphic pattern and painted in three colours, red, yellow, and green. The resonator is half a cocoa-nut shell closed by a diaphragm of wood luted on with dammar; one of the "eyes" of the cocoa-nut has been bored forming an orifice at the bottom of the resonator. The

rattan string at one end is looped round the part of the stem that projects beyond the resonator, the other passes into a groove and round a tuning peg that traverses the stem just below the head. Bridge missing; a long and stout bamboo bow with rattan string. Total length 78 cm; diameter of resonator 11.5 cm.

Catalogue No. 974. Brooke Low collection.

d. (2nd specimen from right). Stem straight, flattened, of hard brown wood; it transfixes the resonator but does not project much beyond; the head is enlarged, its front edge is notched and carved. The resonator is made from a section of bamboo, cut just above and just below a node; the septum of the bamboo is perforated with a star-shaped hole; the top of the resonator is covered with a diaphragm of skin lashed on with rattan (Plate VII, fig. 1); the plaited band of rattan (c.) encircles the resonator at the zone of the leaf-scars. The single rattan string is at one end looped over the stem in the usual manner, at the other end is lashed round the lower end of the head, passing through a hole in the front border; there is no tuning peg. There is a wooden bridge shaped like an inverted V, resting on the diaphragm of the resonator and a grass bracing string. The bow is of rattan with a string made from a strand of the stem of the bracken, *Pteris aquilina*. Total length 59.7 cm.; diameter of resonator 6.2 cm.; height of resonator 7 cm.

Catalogue No. 1228. D. J. S. Bailey, Esq. [P]; from the head waters of the Undup River.

e. (1st specimen on left). Stem of soft wood, almost square in transverse section; it transfixes and projects beyond the resonator; the head is much enlarged, flattened laterally and bent back at an angle to the rest of the stem; on each side a phyllomorphic pattern (*resum=Gleichenia dichotoma*) is carved in deep relief. The resonator is half a cocoanut shell, one of the "eyes" at the bottom has been perforated; the mouth is covered with a diaphragm of monkey skin with the hair still on fastened with rattan lashings in the usual manner (Plate VII, fig. 1) The single rattan string at one end passes through a hole pierced in the part of the stem that projects beyond the resonator

and is prevented from slipping through by a knot : the other end is attached to the tuning peg; this transfixes the head just above the angle, and in order to expose a length of peg round which to wind the string a deep short longitudinal groove is cut in the anterior face of the head, into this the string runs, is wound round the peg, passes out through the peg hole and is knotted to the peg outside the groove (Plate VII, fig. 4). A wooden inverted V-shaped bridge is set on the diaphragm and a small slip of wood is thrust under the string just before it enters the tuning-peg groove. There is a bracing string of grass. The bow is of bamboo with a grass string. Total length 83.5 cm; diam. of resonator 12.5 cm.

Catalogue No. 1229. D. J. S. Bailey, Esq. [P. ii. 03].

Except that there is only one string this instrument might be called an *engkerbap*, the shape and carving of the head of the stem being very characteristic of that instrument. From the Undup River.

2. Land-Dyak—*Sigittuad* or *Sigitot*. (Plate VII, fig. 7.)

Stem a length of bamboo (*tongon*). Resonator a hollowed-out coconut shell with the top third cut off, it is transfixed by a piece of wood (*benoah*) which then passes a short way up the cavity of the bamboo stem; in the bottom of the coconut shell is pierced a quincunx of holes; the top is covered by a circular sheet of sago-palm leaf, which is not secured in any way. There is one tuning peg (*thān*) which transfixes the stem back to front not from side to side as in the *enserunai*. The single string (*oōi*) which is the adventitious root of some epiphytic plant is knotted at one end of the piece of wood transfixing the resonator, at the other it is wound round the tuning peg. A triangular block of wood (*tikyer*) stands on the diaphragm and serves to bridge up the string. There is a small bow of bamboo with a string made from a strand of the stem of the common bracken, *Pteris aquilina*. Total length 62 cm. From the village of Krokong, Upper Sarawak.

Catalogue No. 1277. E. W. Byrde, Esq. [P. vij. 03]

The instrument is of very simple construction, in fact it was made in about half-an-hour, the taut string serves to keep every thing together, if this is slackened the diaphragm slips off

the resonator and the resonator itself becomes detached from the bamboo stem. The Krokongs occasionally make more finished fiddles than the one described above, but there are no specimens of such in the Sarawak Museum nor have I ever seen one; in some instances the head of a *sigittuad* stem may be carved to resemble a hornbill's head.

3. Sea-Dyak—*Engkerbap*.

Stem straight of a soft wood, transfixing resonator and projecting slightly beyond; the resonator is half a coconut shell with a diaphragm of lizard (*Varanus salvator*) skin, secured by rattan lashings and wedges in the usual manner. The head of the stem resembles that in the *enserunai* No. 1229; the pattern has been painted red, blue, green and yellow. The two strings of split rattan are at one end tied to that portion of the stem which projects beyond the resonator, at the other they pass round two tuning pegs which are fitted as in the *enserunai* No. 1229. (Plate VII, fig. 4) The bow (*pengayat*) is of rattan with a grass string. Total length 97 cm. From the Batang Lutar.

Catalogue No. 1342. D. J. S. Bailey, Esq. [P. 29. ix, 03]

B. GUITARS.

1. Kyan—*Sapeh* (Pl. II, fig. 4.)

Two-stringed guitar strummed with the fingers. A large heavy instrument cut out of a block of *tapang* wood. The resonator has been hollowed out at the back to a depth of from 7 cm. to 10 cm.; the cavity is not closed by a diaphragm. The face of the resonator is somewhat convex; it is decorated with seven white discs formed of ground *Trochus* shells and at the base with an incised geometrical design typically Kayan in character arranged on either side of a pointed ridge. The stem is straight, thickening to the head which is carved to represent the head of a dragon (*asu*); a shell disc is let into the top of the dragon's head. There are two tuning pegs, one end of these is roughly shaped, the other is split to receive the strings which pass through holes in the stem (Plate VII, fig. 5) and so into the split ends of the pegs. The strings are of rattan,

at their lower ends they pass through holes in the face of the resonator and are knotted to prevent slipping through. Bridge lost.

Total length, 12·5 cm.; length of stem, 46·8 cm.; greatest breadth of resonator, 28·8 cm.; breadth of resonator at the bottom 19 cm.; greatest depth of resonator 14·3 cm.

Catalogue No. 52. Brooke Low collection.

A diminutive model of a very similar instrument is hung on the wall of a model of a Kajaman house (Belaga, Rejang R.) recently presented to the Sarawak Museum. Ling Roth, (l. c. Vol. II, p. 261) figures a similar instrument in the British Museum. This however was made by the Long Wai, who dwell on the Mahakkam River, they are grouped by Dr. C. Hose amongst the Kayaes; the Long Wai name for this instrument is *impai*.

2. Dusun.—Two stringed guitar (? native name) (Pl. VII, fig. 6).

This is carved from a block of soft white wood. The stem is long, square in section about its middle, expanding at its junction with the resonator and at the head which is carved and moulded; on its front face five little blocks of wood are pegged on (3-3½ cm. apart), apparently to mark the fingering of the strings. The resonator which is somewhat boat-shaped is hollowed out from the back and the cavity is closed by a sheet of sago-palm leaf laced on with rattan stitchings to the wood. Both the front and the back of the resonator are perforated in their centres by two triangular holes, the apices of the triangles being conjoined. Part of the resonator is not hollowed but is produced distally as a solid piece, curved slightly upwards. A shaped ridge of wood terminating proximally in a square block is left on the face of the resonator; the two brass-wire strings are looped through holes in the ridge, pass through the square block up to the lower end of the head which they pierce and then are wound round two tuning pegs.

Total length 119·5 cm.; length of stem, 67 cm.

Catalogue No. 1274. Collected by the late Dr. A. Dennys Acquired by exchange from the Raffles Museum, Singapore.

A somewhat similar specimen is figured by Whitehead in "Exploration of Mount Kina Balu," (1893) p. 108.

3. Maloh and Sea-Dyak—*Blikan*.

a. Maloh—*Blikan* (Plate II, fig. 3). Two-stringed guitar cut from a block of soft white wood. The resonator is hollowed out from the front and the cavity is closed by a tightly-fitting wooden lid, securely pegged on; this lid is decorated with a geometrical design painted in indigo. The end of the resonator is produced and solid, it has been whittled and fretted to form a scroll. Four triangular holes, their apices conjoined are cut in the lid of the resonator and a block of wood is left attached to the lid just distad of the four holes. The stem is quite straight, somewhat triangular in section, it is very deep from front to back in its lower (distal) portion where it joins the resonator and the back of it here is scrolled and decorated with lines of black dammar; three chevrons of dammar are painted across the back of the stem higher up. The proximal end is expanded into a head carved to represent the head of a hornbill (*Buceros rhinoceros*) with a seed in its mouth, the neck is stained black. Two tuning pegs transfix the stem below the head. The two rattan strings distally are fastened to two little wooden spikes stuck into the wooden block on the lid of the resonator: proximally they pass through holes in the stem just over the tuning pegs, out through the tuning-peg-holes and are gripped in the split-ends of these pegs (Plate VII, fig. 5). Total length 89.8 cm.; length of stem 52 cm.; breadth of resonator 15.5 cm.

Catalogue No. 54. Brooke Low collection. Brooke Low (quoted by Ling Roth l. c. Vol. II, p. 262), describes a *blikan* in use amongst Saribas and Kalaka Sea-Dyaks; in this, the head

* The Malohs whose headquarters appear to be the Kapuas river, Dutch Borneo, are an unsettled wandering people who frequently come over into Sarawak for trading purposes. Dr. A. C. Haddon, F.R.S., who measured 7 individuals finds that these had an average cephalic index of 76.2; he does not group them in any of the five classes into which he divides the natives of Sarawak, but it is likely that they fall into the Kenyah-Kayan division (cf. A sketch of the Ethnography of Sarawak, Haddon, Archivio per l'Antropologia et l'Etnologia, Vol. XXXI, 1901).

of the stem is actually formed from the bill of a hornbill glued on to the stem, and is not a carved representation of a hornbill's head as in the Maloh specimen described above.

Hose and McDougall, in a paper—"The Relations between Men and Animals in Sarawak" (Journ. Anthropol. Institute. Vol. XXXI, 1901. p. 198) write:—"The hornbill must be included among the sacred birds of the Iban (i.e. Sea-Dyaks), although it does not give omens. On the occasion of making peace between hostile tribes, the Ibans sometimes make a large wooden image of the hornbill and hang great numbers of cigarettes on it, and these are taken from it during the ceremony and smoked by all the men taking part in it." Smaller figures of the hornbill (*Pencharlong*—*Buceros rhinoceros*) are suspended in Sea-Dyak houses during harvest feasts and food is either put into the mouths of the figures or else hung beneath them, (cf. Ling-Roth I. c. Vol. I, p. 256). There are several examples of these *Pencharlong* in the Sarawak Museum; the birds are invariably represented as holding one or more seeds in their beaks. Amongst the Kenyahs the hornbill *Anorrhinus comatus* gives omens of minor importance. It is not surprising that so important a bird should figure in the decorative art of the Borneans.

b. Sea-Dyak—*Blikan*. Very similar to the preceding specimen, but roughly made and undecorated with carving or paint. The shape of the head suggests that it was intended eventually to carve it into a representation of a hornbill's head.

Total length, 79 cm. Length of stem, 52 cm.

Catalogue No. 1341. D. J. S. Bailey, Esq. [P. 25. viij. 03]. From the Batang Lutar.

It is highly probable that the Sea-Dyaks borrowed this instrument and its name from the Malohs; some of them at any rate assert so much.

5. Malay—*Gambus*, six-stringed mandolin, (Plate II, fig. 5).

The instrument is cut out from a block of *mirabou* (*Afzelia bijuga*) wood and is shaped like the European mandolin, i.e. the stem passes insensibly into the resonator and the shape of the instrument is that of a pear longitudinally bisected. Both the stem and the resonator are hollowed out from the front; the

cavity of the stem is closed by a piece of wood nailed on, the cavity of the resonator by a diaphragm of skin, edged with blue cloth and nailed to the sides with brass-headed nails. The back of the resonator is perforated with a circular hole and the cover of the stem near its junction with the resonator is similarly perforated. This orifice is surrounded by incised lines forming a conventional flower design. A rectangular block of wood is driven into the lower (distal) end of the resonator and through holes in this the strings pass to be attached to a cross bar of wood at its back. The stem is expanded proximally to form a curved head, the cavity of the stem is continued up into the lower part of the head, but not only is not closed in front, but the back of the head is here cut away leaving the two sides only, these are perforated with six holes for the tuning pegs; the rest of the head is solid and its sides are decorated with a phyllomorphic pattern in deep relief, in front with a phyllomorphic design in shallow relief and three brass headed nails. There are six tuning pegs (*petaran*) and six cotton strings. An inverted V shaped bridge rests on the diaphragm.

Total length 93 cm. ; greatest breadth of resonator 16.9 cm. Catalogue No. 1207. [Pd. xii. 02.] It appears probable that this instrument has been borrowed from the Arabs. There is a similar specimen in the Cambridge Anthropological Museum obtained by W. W. Skeat, Esq., in the Malay Peninsula.

CLASS III.—UPRIGHT HARPS.

(Plate II, fig. 6.)

These instruments, which appear to be used only by Muruts Dusuns (?) and Sea-Dyaks are roughly rectangular boxes (resonators) with a handle and an upright or a handle alone at each end. Strings are stretched in a vertical plane from one handle or upright to the other and are kept taut by upright bridges standing on the lid of the box; the addition of tuning pegs seems to be a modern development. The Murut harp is simpler in construction than the Sea-Dyak forms and its strings being looped through the handles, not tied separately as in the Sea-Dyak harps are in two parallel vertical planes instead of in one. The strings are strummed with the fingers of one hand

whilst the lid of the resonator is tapped with the fingers of the other.

I am inclined to believe that the Sea-Dyak *engkratong* at any rate is derived from a stringed instrument like the *enserunai* through a guitar stage. In my private collection is a roughly made Sea-Dyak six-stringed guitar very like the Dusun guitar in shape but with a much longer projection distad of the resonator and this instrument is known to Sea-Dyaks as an *engkratong*. If the stem of this guitar was shortened to correspond in length with the distal projection and if the string were stretched between two uprights in a vertical plane the instrument would become an *engkratong*. It is at least curious that the guitar in this form should be known to the Sea-Dyaks only under the name of *engkratong*, and that it should have disappeared almost entirely from use.

Ling Roth (l.c. Vol. II, p. 260), figures a zither from S. E. Borneo in the collection of the Leyden Museum. It is a flat board with eight strings stretched across it and bridged up with a cylindrical piece of wood at each end; there is no information as to the tribe from whom the instrument was obtained. I do not consider that the instrument is connected in any way with the *engkratong*, and have doubts as to the correctness of the locality quoted.

1. Murut—Upright Harp. (Plate II, fig. 6, upper specimen).

A long narrow wooden box, truncate at one end, at the other tapering and produced into a handle; it is cut out of one piece of wood and hollowed out from the bottom, the cavity being closed by a wooden cover pegged on with wooden pegs. The handle is a flattened oval. Two loops of rattan (making four strings) pass through two holes in the handle to the opposite end of the instrument, where they perforate a projection from the wall of the box and are knotted to prevent slipping. The four strings are raised clear from the resonator by two upright bridges set in holes in its roof; the bridges have two notches on each side to receive the strings. The strings were originally of *bemban* (*Donax sp.*) but having been destroyed by insects, are replaced by rattan.

Total length, 117.6 cm. ; greatest breadth, 7 cm. ; depth, 6 cm. Catalogue No. 732. Dr. G. D. Haviland coll. From the head waters of the Tengoa River., British N. Borneo.

2. Sea Dyak.—*Engkratong*.

a.—A wooden box roughly rectangular in shape, the lower sides rounded, a projection at each end, all cut out of one block ; the cavity is hollowed out from the top and closed by a tightly fitted lid of wood securely pegged down ; the lid is perforated with a triangular hole in the centre, into the terminal projections are set two large flattened handles, carved and fitted into a phyllomorphic design. A slender wooden upright is stuck into each projection just where it issues from the resonator. Four separate rattan strings pass from one upright to the other, to one they are knotted by slip-knots, to the other by double hitches. Two wooden upright bridges stand on the lid of the resonator, they are notched on one side only to receive the strings.

Total length 106 cm. ; resonator 41 cm. \times 16.9 cm. \times 10.1 cm.

Catalogue No. 53. Brooke Low collection.

This specimen has been figured by Ling Roth (l.c. Vol. II, p. 261) ; on the same page Ling-Roth also figures another specimen, one handle of which is a fowl's head, the other its tail, and describes this as being in the Brooke Low collection ; I have been unable to find any trace of this particular instrument in the Sarawak Museum.

(Plate II, fig. 6, lower specimen).

b.—A rectangular wooden box with a handle at each end, all cut from one block ; the box is hollowed from the top and the cavity is closed by a wooden lid nailed on ; the lid is perforated with a circular hole in the centre ; the handles are scrolled. Into each handle is set a stout wooden upright quadrangular in section, their tops are expanded and shaped to a leaf form, one in addition has one side carved in relief. Five rattan strings pass through holes in one upright to tuning pegs in the other, over notches in an upright bridge. Resonator, 58 cm.—15.6 cm.—14 cm. ; height of upright, 29.3 cm.

Catalogue No. 1258. D. J. S. Bailey Esq., [P. xii. 02.]

CLASS IV.—CYLINDRICAL HARPS.

(Plate III, fig. 7. Plate VI fig. 14).

These are made from a joint of a large species of bamboo ; the strings, four to twelve in number, are cut out from the bamboo but are left attached at their ends and are tightened with slips of wood thrust under them. The septa of the bamboo joint are generally perforated and to increase the resonance of the instrument a longitudinal slit or a hole is cut in it. This class of instrument is in use amongst the Kyans, the Kenyahs, the Long Kiputs, the Kadyans, the Dusuns, and the Land-Dyaks. The method of performing on this instrument amongst the Land-Dyaks of the Sadong River is as follows :—

The performer sits on the ground, rests one end of the instrument against the side of his right foot and the back of it against his left thigh ; the strings are struck with a short stick held in the right hand and with the left hand the player alternately opens and closes the upper and open end of the instrument ; the strings can be tuned by altering the position of the bridges. Several men usually perform together and a sound like distant gongs can be produced by experts ; other men accompany with the *lalipok* and *pelonchong* ; the former is a portion of bamboo joint shaved down so that the wall is quite thin, one end is open and is struck against some hard substance ; the latter is a piece of bamboo joint with a hole cut in the side and it is struck with a stick (Plate VI fig. 14). The Krokong Land-Dyaks still play on these harps at their festivals, the Sadong Land-Dyaks only occasionally play on them and then not seriously, whilst at Quop these instruments are merely toys made and played on by children.

1. Dusun—*Tangkungang*. (Plate III, fig. 7, left hand specimen).

Made from a single joint of bamboo which is cut off flush with the septa so that nothing projects at either end ; both the septa are perforated. There were originally five strings arranged more or less equidistantly round the instrument ; all but two of the strings broken. Total length 51.4 cm. ; diameter, 10.5

cm. ; distance between the strings, (measured along the curve of the bamboo) about 6.5 cm.

Catalogue No. 775. Drs G. D. and H. A. Haviland coll. [P. v. 92]. From Kiou, Mt. Kina Balu. The equidistant strings and the absence of projections beyond the septa show the primitive nature of the instrument ; it is roughly made and is devoid of ornamentation. I have no information as to the method of performing on this instrument, but I imagine that it is held upright between the feet and that the strings are twanged with the fingers of both hands.

In the Raffles Museum, Singapore are two cylindrical harps purchased from the late Dr. Dennys and said to be Dusun. These are much more complicated in structure than those in the Sarawak Museum example. Both have twelve strings. In one these are arranged in groups of three, four and five, in the other in a group of seven, with the other five strings round the remaining periphery ; in both, the bamboo projects considerably beyond the septa and the upper tubular projection so formed is deeply notched ; one of the instruments has two longitudinal slits to increase its resonance.

2. Kanowit—Cylindrical Harp. (Plate III, fig. 7, right hand specimen).

At one end (the lower) the bamboo is cut off almost flush with the septum, at the other end (the upper) the bamboo projects 4.5 cm. beyond the septum and at one part still further, 11.6 cm., to form a shaped handle 7 cm. long. Round the top of the instrument runs a band of geometric pattern, roughly carved in low relief, the background stained with dragon's blood. There are only four strings arranged in pairs one on each side of a longitudinal slit in the body of the harp ; this slit, which is enlarged at each end in the manner shown in the figure is on the same aspect (the front) of the harp as the handle. A band of plaited rattan encircles the harp at the levels of attachment of the strings to prevent them splitting off. The septa are not perforated. Length (exclusive of the handle) 63 cm. ; diameter 11.8 cm. ; distance between one pair of strings and the other, measured along the curve of the instrument in front, 11 cm. ; measured along the curve at the back 13.5 cm.

Catalogue No. 563. Brooke Low collection. From the Kanowit River.

This instrument could be laid on its back and whilst the handle was grasped with one hand, the strings could be strummed with the fingers of the other, but I have no information as to how the Kanowits actually perform on the harp.

3. Long Kiput*—*Pagang* or *Kantom* (Plate III, fig. 7, middle specimen).

The bamboo projects 9 cm. beyond the septa and is there shaved down so as to be quite thin; on these shaved down portions are carved bands of simple design, such as rows of triangles, rows of dots, rows of oblique bars, the background is whitened with chalk or else the pattern itself is chalked and the background is blackened with indigo or soot. The septa are not perforated. There are six strings arranged in groups of three, one on each side of a middle line. A rattan plait encircles the harp at the level of attachment of the strings to prevent them splitting off. Down the front of the instrument run two short longitudinal slits, end to end; at the upper end of one slit and at the lower end of the other are three incised circles, between the two a group of five incised circles; the cuticle of the bamboo immediately bordering the slits is stripped off and on these areas is carved in relief in one case a chevron pattern in the other a dog's tooth pattern, the background is black and the relief chalked. Total length 77.5 cm.; diameter, 9.1 cm.

Catalogue No. 1069. R. S. Douglas Esq. [P. v. 00.] From the Baram River.

A Long Kiput harp is figured in Ling Roth's work (l.c. Vol. II, p. 262); it is from Dr. C. Hose's collection and is called a *Satong*.

4. Land-Dyak (Menggrat sub-tribe)—*Ton-Ton*. (Plate VI fig. 14).

a. Made from a joint of bamboo; the bamboo is not cut flush with its septa, but at either end projects considerably; one septum is broken through. Three strings or rather three broad

* This tribe is placed by Dr. A. C. Haddon, (l.c.) in his group of Kalamantans.

strips (1 cm.) are cut out from the body of the instrument on one side but are left attached at each end and are prevented from stripping off by bindings of rattan. The central strip is bridged up with a block of wood in the middle and emits a high note; the side strips are bridged up at their ends and give a much lower note; under each side strip a diamond shaped hole is cut in the body of the instrument. A short stick for striking the strings is attached by string to the harp. Length 69 cm.; diam. 7.8 cm.

Catalogue No. 1295. [Pd. viij. 03.] From Piching. Upper Sadong.

b. A specimen entirely similar to the preceding. Length 67 cm.; diam. 9 cm.

Catalogue No. 1296. [Pd. viij. 03.]

WIND INSTRUMENTS.

The wind instruments used by the tribes of Borneo may be grouped as follows* :—

A.—Without special vibratory apparatus.

I. Shell-trumpet.

* In any wind instrument sound is produced by causing the column of air contained in it to vibrate, and the instruments have been classified according to the means employed to produce this vibration. An outline of such a classification will help to elucidate that which I have adopted for the wind instruments of the Bornean peoples.

1. Trumpets—in these air is driven forcibly into the instrument through the almost closed lips of the player, the lips vibrating act as a partial valve and the air enters the instrument in a pulsatory manner.

2. Flutes, pan-pipes, flageolets, whistles, etc. In instruments of this class a jet of air is directed against the edge of the sound hole (technically known as the “voice”) and so is cut in two, causing an interference which sets the air in the instrument vibrating and produces a musical note.

a. Transverse flutes—in which a jet of air is directed by the lips against the edge of the “voice.”

b. End-flutes, pan-pipes—in which the jet of air is directed by the lips across the open end of a tube so as to impinge against the edge.

II. Transverse flutes.*

III. Nose flutes.

IV. Flageolets and bird-calls with a directive duct built up outside the instrument.

V. Flageolets and whistles with a directive duct formed inside the instrument.

B. With special vibratory apparatus.

VI. Pipes with single "beating" reed (clarionet type).

VII. Mouth organs with single "free" reed (harmonium type).

CLASS I.—SHELL-TRUMPET.

Some Brunei Malays recently informed me that a trumpet, made by merely knocking off the top whorl of the large helmet-shell—*Cassis tuberosum*—, is used by them for calling their buffaloes together; their name for the trumpet was "buyong." I can hear of no other people in Borneo who employ a similar instrument.

CLASS II.—TRANSVERSE FLUTES.

I know of only one example of this type of wind-instrument, the *sulieng san* of the Sea-Dyaks; it is more difficult to play than

- c. Whistles—in which the jet of air is directed against the edge of the "voice" through a duct built on the outside of the tube.
- d. Flageolets, whistles, etc. (flute à bec group) in which the jet of air is directed against the edge of the "voice" through a duct formed inside the tube.

3. Reed instruments.

- a. Clarionet, recorder, etc, with single vibrating reed ("beating reed.")
- b. Accordion, harmonium, etc.—with single reed vibrating equally on either side of a frame ("free reed.")
- c. Oboe, bassoon, etc.—with double valve both sides of which are flexible ("oboe reed.")

(There are of course many variants of these main types.)

* Classes II—VI are all bamboo instruments.

the nose flute or than any of the flageolets and this probably accounts for its sparse distribution.

1. Sea-Dyak—*Sulieng san* (Plate VIII fig 1.)

Made of bamboo, one end (the distal)* open and slightly obliquely truncate; the natural septum closes the other end; the bamboo has not been cut flush with this but projects considerably beyond it. The sound-hole is a long quadrangular slit cut close to the node of the bamboo. There are four open stops all on the same side and about 3 centim. apart. Total length, 83.3 cm.; diameter, 2.5 cm.

Catalogue No. 62. Brooke Low collection.

None of the Bornean tribes adopt any standard of measurement when boring stopes in their flutes, but bore them at the distances apart the most convenient to the maker.

CLASS III.—NOSE-FLUTES.

(Plate III fig. 8 and Plate VIII fig. 2.)

These are employed by Dusuns, Kanowits, Tanjongs, Kawayans, Kenyahs and allied tribes, Sea-Dyaks and Land Dyaks.

A photograph of a Tanjong playing on a nose flute is given in Beccari's "Nelle foreste di Borneo" (1902) p. 424; the performer is seated cross-legged on the ground and holds the long bamboo flute across his body from right to left and almost at arm's length, the left nostril is applied to the proximal end of the instrument and directs a jet of air against the edge of the hole pierced in the natural septum of the bamboo.

Air is driven through only one nostril, the other is plugged with cloth or tobacco or moss (cf. Ling-Roth l. c. vol. II, p. 258). These instruments are generally long and are made from a single joint of bamboo, the distal end is open and the proximal end is closed by the natural septum which is perforated by an irregularly shaped hole; the leaf-scars and the wall of the bamboo immediately adjacent to the septum are shaved and smoothed down. Fig 2 Plate VIII is a representation of the proximal end of a nose-flute. The number of stopes varies.

*I term the end near or at which the sound hole is situated the *proximal* end; the opposite end, the *distal* end.

1. Dusun—*Turali*.

Made from a long joint of bamboo, the distal end is open and cut square, the proximal end is closed by the natural septum and the surrounding leaf-scars have been shaved off. The flute has been stained black with indigo. An irregular hole in the septum. There are four open stops, one on the underside for the thumb 34 cm. distant from the proximal end, three on the opposite side 5·5 cm. apart, bored in a flattened strip formed by removing the cuticle of the bamboo.

Length 70 cm.; diam. 2·2 cm. Catalogue No. 776.

2. Kanowit—*Sangoi* (Plate III, fig. 8, right hand specimen).

Of large size, the proximal end closed by the natural septum of the bamboo which is perforated with a single irregular orifice. There are four open stops, one on the underside for the thumb of the right hand, distant 55·2 centim. from the proximal end of the flute, and three on the upperside, 4·4·5 centim. apart for the first or second fingers of the right hand and the first and second or second and third of the left hand.

The flute has been stained red with dragon's blood. At a distance of 12 centim. and extending to a distance of 51 centim. from the proximal end is a design made up of four black bands spirally twisting round the instrument, this is followed by two circular black bands and six dog's-tooth pattern bands, which are succeeded by a repetition of the spiral design 72·8 centim. distant from the proximal end and 21·5 centim. in length; there is a terminal dog's-tooth design, beyond which the bamboo is fretted, eight diamond-shaped apertures being formed, the rim of the bamboo is notched, between the notched rim and the frets is a very rough dog's-tooth pattern. These patterns are painted on the bamboo with indigo though in parts it is partly in low relief as if the artist had first sketched out the patterns with a knife. A small tassel of variously coloured beads depends from the distal end of the flute.

Total length 107·3 cm.; diam. 3 cm.

Catalogue No. 60. Brooke Low collection.

Ling-Roth (l. c. p. 258) figures a Kenyah nose-flute (*Silingut*) in the collection of Dr. C. Hose.

3. Sea-Dyak—*Sulieng idong* (Plate III, fig. 8).

All these are of much less diameter than Tanjong, Kanowit, and Kenyah examples.

a. Third specimen from right.

The proximal end is closed in the usual manner, the distal end is closed by the septum of the joint and the bamboo projects beyond this; a large oval hole is cut in the flute just proximad of the distal septum, so that the flute has one end practically open. There is a stop on the under-side 51 centim. from the proximal end and three stops on the opposite side 4·5-5 centim. apart. The stops have been bored with a red-hot iron. Total length 98·5 cm.; diam. 2·7 cm.

Catalogue No. 558. Brooke Low collection.

b. Middle specimen.

Of similar construction to the preceding specimen, but the distal end quite open and cut obliquely. One stop on the under-side 46 centim. from the proximal end, three stops on the opposite side, about 5 centim. apart. Nine red bands formed by removing a strip of the cuticle of the bamboo and staining the exposed surfaces with dragon's blood—encircle the instrument; the stops are situated in four of these bands, three are proximad of the stops, two distad, the last being terminal; the bands are about 1·5 centim. broad. Total length 83 cm.; diam. 3 cm.

Catalogue No. 559. Brooke Low collection.

c. Similar to 559 but not decorated. The note-hole on the under-side is 51 centim. from the proximal end, the three stops on the opposite side are 3-3·5 centim. apart. Total length 75 cm.; diam. 2·5 cm. Badly damaged by beetle.

Catalogue No. 560. Brooke Low collection.

d. (Fifth specimen from the right).

Of the usual construction: the hole perforating the septum is regular, the distal end is cut square except for a triangular projection. The stop on the under-side is 40 centim. from the proximal end, the three on the opposite side are about 5,

centim. apart. Four pairs of incised lines run round the flute, a stop being situated between each pair; it was evidently the intention of the maker to decorate the flute like No. 559. Total length 75 cm.; diam. 2.3 cm.

Catalogue No. 561. Brooke Low collection.

e. (Fourth specimen from the right).

Of the usual construction, the distal end obliquely truncate and the edges curved. The stop on the under-side is 35.5 centim. from the proximal end, the other three are about 5.5 centim. apart. The whole instrument, with the exception of a band at each end, has been scraped down and stained with dragon's blood, a dog's-tooth pattern has been cut in the proximal unstained band. Total length 70 cm.; diam. 2.7 cm.

Catalogue No. 562. Brooke Low collection.

CLASS IV.

Flageolets and Bird-Calls. With a directive duct built up on the outside of the instrument. (Plate III, fig. 8, and Plate VIII, figs. 3-10).

a. FLAGEOLETS.

This class of flageolet or whistle is in use amongst the Sea-Dyaks, the Land-Dyaks, the Muruts, and possibly some other tribes. There are four distinct ways in which the directive duct is formed:—

A.—A curved slip of bamboo is tied on to the flageolet with string or rattan, it occupies the space between the proximal end of the instrument (which may be open or closed by the natural septum) and the sound-hole (Plate VIII fig. 3).

B.—The bamboo is not cut perfectly flush with the septum but projects *slightly* proximad of it; the portion of the instrument between the proximal end and the sound-hole is shaved down and one side is cut flat, over this shaved-down portion a ring of bamboo is fitted. (Plate VIII figs. 4 and 5).

C.—Similar to the preceding except that a loop of rattan is fastened round the shaved-down portion (Plate VIII fig. 6).

D.—The bamboo is not cut flush with the septum but projects considerably proximad of it, in this projecting “tube” a hole is bored, a gutter runs from it to the sound-hole, and is roofed over with a slip of bamboo luted on with resin (Plate VIII figs 7 and 8).

A.

1. Sea Dyak—*Sulieng nyawa*.

(Plate III fig. 8. 5th specimen from left and Plate VIII fig. 3).

Flageolet of bamboo the proximal end cut square and open the distal end obliquely truncate with a projection and the edges notched. The sound-hole is 1.7 centim from the proximal end; just proximad of the sound hole a slip of bamboo naturally curved, is lashed with cotton to the instrument and projects slightly beyond its proximal end. There are four stops the uppermost is 12.2 centim. distant from the sound-hole, they are about 3 centim. apart from each other. The flageolet is covered with phyllomorphic patterns carved in low relief, the background being stained with dragon's blood. Total length 30.5 cm.

Catalogue No. 1113 [Pd. xii. 03.]

2. Land-Dyak (Bukar sub-tribe)—*Banchi*.

Flageolet of bamboo. The distal end is open, the proximal end is closed by the natural septum and the bamboo is cut flush with this. The directive duct is formed by shaving flat a strip between the sound-hole and the proximal end and tying over this with a piece of bark a slip of bamboo naturally curved. There are three stops situated on the opposite side to the sound-hole, they have been bored with a red hot iron in a flattened strip formed by removing part of the wall of the bamboo, they are 3.5 centim. apart. Total length 33.5 cm. diam. 2 cm.

Catalogue No. 1293 [Pd. viii. 03.]

From Lanchang, Upper Sadong district.

This flageolet is played with the sound-hole downwards; the Sea-Dyaks always bore the stops on the same side as

the sound-hole which is therefore directed upwards when the flageolet is played.

B.

3. Land-Dyak (Krokong sub-tribe)—*Telarli*. (Plate VIII fig. 4 and 5.)

a. Distal end open and obliquely truncate, proximal end closed by the natural septum, the bamboo not projecting much beyond it. The wall of the bamboo distad of the septum is obliquely sliced on one side and in the exposed surface the sound-hole is bored; between the sound-hole and the proximal ends the wall of the bamboo is shaved down and one side (that corresponding with the sound-hole) is cut flat: over this portion of the flageolet a ring of bamboo (*bak*) is fitted. On the side opposite the sound-hole are five stops bored with a red-hot iron in a flattened strip formed by cutting away the cuticle of the bamboo; the distances between the stops range from 2.3 centim to 3.7 centim., the uppermost is 19 centim. from the sound-hole. This form of flageolet is known as *luki*, i. e. male, it is played in the same way as the *banchi*, with the sound-hole downwards. Total length 43 cm.

Catalogue No. 1280. E. W. Byrde Esq. [P. vii. 03.]

From Krokong village, Sarawak River.

b. Much the same as the preceding but the distal end is not obliquely truncate; there are only two stops and these are on the same side as the sound-hole, they are 4.5 centim. apart and the upper one is 25.5 centim from the sound-hole. This form is known as *puan*, i. e. female. Total length 46 cm.

Catalogue No. 1281. E. W. Byrde, Esq. [P. vii. 03.]

From Krokong village; Sarawak river.

4 *puan* flageolet.

Distal end open and cut square, proximal end closed by the natural septum and the bamboo cut flush with it; the sound-hole is bored 4.5 centim. from the proximal end and the intervening portion of the bamboo wall is shaved down and one side is

flattened, over this is fitted a ring of bamboo. There are two stops bored in a flattened strip on the same side as the sound-hole. They are 5·5 centim. apart, the upper one is 44·5 centim. from the sound-hole. The flute is decorated with an incised phyllomorphic design roughly executed. Total length 64·5 cm.; diam. 1·7 cm.

Catalogue No. 1292. F. J. D. Cox, Esq. [P. viii. 03.]
From the Trusan river.

5. Sea-Dyak—*Sulieng nyawa*.

(Plate III fig. 8, second specimen from the left).

Distal end open and cut square, proximal end closed by the natural septum, the bamboo projecting slightly beyond it. The sound-hole is bored just distad of the septum and the bamboo wall between it and the proximal end is shaved down in the usual manner; the bamboo ring that fits over this portion has been lost. There are three note-holes about 3 centim. apart from each other, the uppermost being 25 centim. from the sound-hole. Total length 41·3 cm.; diam. 2 cm.

Catalogue No. 64. Brooke Low collection.

It is quite possible to play on this flageolet and the three preceding ones even if the bamboo ring is removed, the upper or lower lip in that case helping to form the directive duct; it is therefore just possible that the Sea-Dyak flageolet never was furnished with a bamboo ring but I think that this is unlikely and at any rate the Sea-Dyak specimen falls naturally into position with the Murut and Land-Dyak ones.

C.

6. Land-Dyak—*Kroto* (Plate. VIII fig. 6.)

Distal end open and slightly obliquely truncate, proximal end closed by the natural septum, the bamboo projects slightly beyond this; slightly distad of the septum the bamboo is obliquely sliced and in the exposed surface the sound-hole is bored with a hot iron; between the sound-hole and the proximal end the bamboo wall is shaved down and has one side flattened in the

usual way. Instead of a bamboo ring fitted over this portion a strip of split rattan is wound round it, knotted once, then carried down the back of the instrument and tied round it six times in the manner shown in the drawing. There are five stops on the opposite side to the sound-hole bored with a red-hot iron in a strip flattened by stripping off the cuticle of the bamboo. They are 2·5 centim. apart. Total length 39 cm.

Catalogue No. 1282. E. W. Byrde, Esq. (Pd. vii. 03).

From Sambas, Dutch Borneo.

D.

a. Murut—Flageolet. (Plate VIII figs. 7 and 8.)

Distal end open and cut square, proximal end closed by the natural septum, the bamboo has not been cut flush with this but projects considerably beyond it; in the wall of this projecting part a small hole is bored quite close to the septum, and a groove runs on the outside of the flute from this hole to the sound-hole, the groove being covered by a slip of bamboo luted on with dammar. The edge of the sound-hole is sharpened by a piece of palm-leaf stuck on to it. The sound-hole is 5 centim. from the proximal end; there are two stops 8·5 centim. apart bored with a red-hot iron in a flattened strip on the same side as the sound-hole, the upper one is 32 centim. from the sound-hole. Total length 52·5 cm. ; diam. 2·5 cm.

Catalogue No. 1291. F. J. D. Cox, Esq. (P. viii. 03). From the Trusan river.

b. (Plate III, fig. 8, second specimen from right).

Very similar to the preceding; there are two lashings of split rattan round the distal end of the instrument to keep it from splitting; the slip of bamboo roofing over the directive groove has been lost. Some rude representatives of animals (? buffaloes) have been scratched with the point of a knife on the wall of the instrument but there is no attempt at a decorative pattern. The two stops are 7·5 centim. apart; the upper is 45 centim. from the sound-hole, which is 7·5 centim. from the proximal end. Length 72 cm. ; diam. 3 cm.

Catalogue No. 733. Dr. G. D. Haviland (P. 1890). From the head of the Tengoa valley.

b. BIRD-CALLS.

Though these are not musical instruments in the strictest sense of the word they deserve notice here since morphologically at least they are musical instruments. I know of two distinct forms of bird-calls used in Borneo :—

1. *Kyan—Bulo wok.* (Plate VIII fig. 9.)

These are constructed on the same principle as the bamboo flageolets of type D, but they are made of a larger species of bamboo and are much shorter. With these the Kyans imitate the cry of the owl *Ninox scutulata* and the cry of the gibbon *Hylobates mulleri*.

a. Distal end open, proximal end closed by the natural septum, the bamboo not cut flush with this but projecting almost as far proximad of it as it does distad ; in this proximal portion a large hole is bored, the very large sound-hole is bored just distad of the septum and leading to it from the other hole on the outside is a wide gutter or groove roofed over with a slip of bamboo luted on with dammar. The instrument is decorated with a characteristic Kyan design carved in low relief. Length 12·7 cm. ; diam. 5·1 cm. ; diam. of sound-hole 2·3 cm.

Catalogue No. 1289. [Acquired by exchange from Dr. C. Hose. ix. 03]. From the Baram river.

b. The distal end open, proximal end closed by the natural septum. The bamboo projected considerably proximad of this but nearly all has been cut away leaving only a small flange in which a hole is bored (*see figure*) ; the sound hole and directive duct as in the preceding example. The instrument, which is not ornamented in any way, is illustrated on Plate VIII, fig. 9. Length (including flange) 13·5 cm. ; diam. 4·9 cm.

Catalogue No. 1290. [Acquired by exchange from Dr. C. Hose ix 03]. From the Baram river.

The Sea-Dyaks, Kenyahs, Kadyans and Muruts employ an interesting form of bird-call for attracting within reach pigeons

and ground-doves. It consists of a section of a large species of bamboo, with a sound-hole bored in it and with one end open, the other closed by the septum; to this section of bamboo a long bamboo stem, with the septa broken through so that a long tube is formed, is obliquely attached so that a current of air directed down the tube impinges against the edge of the sound-hole bored in the bamboo section. The hunter conceals himself amongst herbage or in a leafy shelter and scatters some grain around, and then blows his call; if any bird comes within reach it is captured by a noose at the end of a long stick, the noose being generally spread round the mouth of the bird-call; sometimes the birds are limed. The bird-call is, in fact, a wind-instrument with a directive duct (the bamboo tube) attached to it and falls into Class IV in the classification given above. Ling-Roth (l. c. vol. p. 44) gives a good figure of a Murut bird-call and quotes Burbidge's account of its use.

2. Sea-Dyak—*Bumbun*. (Plate VIII fig. 10)

a. Bamboo section of 6 cm. diameter and 51 cm. in length with one end closed by the natural septum the wall not cut flush with this but projecting considerably proximad of it, the other end open and very obliquely truncate so that a projecting spout is produced. The sound hole is bored at a distance of 10·5 cm. from the septum on the distal side. The portion of the bamboo projecting proximad of the septum is vertically transfix by a wooden upright with a large circular hole in it. The bamboo tube is 233·5 cm. long; it passes through the hole in the wooden upright and is lashed to the bamboo section by rattan; its distal end is obliquely truncate and fits the curvature of the bamboo section leaving only a narrow passage through which the current of air passes to impinge against the edge of the sound-hole; the joint is made secure by a luting of dammar.

Catalogue No. 686. Ven. Archdeacon J. Perham [P.]

b. A very similar specimen, but the spout-like projection of the bamboo section much more pronounced. A long bamboo rod to which a noose should be attached is tied to the bamboo

stem of the instrument. Length of bamboo section 51 cm., diam. 6 cm. Length of bamboo tube 221.5 cm.

Catalogue No. 1035. J. E. A. Lewis, Esq. [P. ix. 98.]

CLASS V.

Flageolets and whistles, with a directive duct formed on the inside of the instrument. (Plate III, fig. 8, and Plate VII, fig. 8 and Plate VIII, figs. 11 and 12).¹²

This type of flageolet seems to be in use amongst the Sea-Dyaks only.

1. Sea-Dyak—*Sulieng nyawa*. (Plate III, fig. 8, and Plate VIII, figs. 11 and 12).¹³

a. (First specimen on the left). Distal end open and obliquely truncate, proximal end cut square and closed by a disc of wood; the sound-hole is quadrangular and is cut quite close to proximal end; the disc of wood closing the proximal end is narrowly grooved on the side corresponding to the sound-hole. There are four stops, 1.9 centim. apart, the uppermost 18.8 centim. from the sound-hole. Length 37 cm.; diam. 1.8 cm.

Catalogue No. 63. Brooke Low collection.

b. (Fourth specimen from the left). Very similar to the preceding; one stopon the opposite side to, and distant from the sound-hole 31.3 centim. three stops on the same side as the sound-hole about3 centim. apart. Length 51.5 cm.; diam. 1.9 cm.

Catalogue No. 65. Brooke Low collection.

c. (Third specimen from the left). Very similar to No. 63, but proximal end slightly obliquely cut in a opposite direction to the oblique truncation of the distal end. Four stops 3-3.5 centim. apart, the uppermost 19.2 centim. from the sound-hole. Length 44.6 cm.; diam. 2 cm.

Catalogue No. 66. Brooke Low collection.

d. A long slender instrument; proximal end slightly obliquely truncate and closed by a disc of wood grooved as in the preceding specimens. Sound-hole quadrangular, cut close to the proximal end. Three stops about 4 centim. apart, the uppermost 38 centim. from the sound-hole. The instrument is elaborately carved; the distal third is ornamented with bands of phyllomorphic patterns in low relief, the background being stained red with dragon's blood; proximad of this is a zone 10 centim. broad of five bands of phyllomorphic patterns in low relief, the background composed of hatched incised lines (very unusual in Sea-Dyak carving); proximad again of this zone is a zone 12 centim. broad of bands of phyllomorphic patterns which have just been sketched out with the point of a knife and never completed. Lengths 54 cm.; diam. 2 cm.

Catalogue No. 556. Brooke Low collection.

e. Somewhat similar to the preceding specimen, but much smaller. Proximal end very obliquely truncated, the opening filled by a plug of wood which has been grooved to form the directive duct; distal end cut square, the wall of the flageolet projects beyond the node but the septum has been broken through. Sound-hole large; there are eight stops, seven on the same side as the sound-hole, one is on the opposite side, they are about 1.5 centim. apart, uppermost 17 centim. from sound-hole. Five bands of tin encircle the instrument in the interspaces between stops 2 to 7; the rest of the instrument is covered with phyllomorphic patterns carved in low relief, the background being stained red with dragon's blood. Length 32 centim.; diam. 1.6 centim.

Catalogue No. 1044. Presented to the Museum by a Sea-Dyak boy at the S. P. G. Mission School.

It is more than likely that this specimen is copied from a European model; the number of stops and the very oblique truncation of the proximal end are most unusual; still No. 556 is more or less intermediate between this school-boy's specimen and such a one as No. 63, so that I have thought it worth while to include a notice of it.

The next instrument of this class is of a different type, it is a clay whistle not unlike the "Ocarina" of European manufacture.

2. Sea-Dyak—*Penyipu*, (Plate VII fig. 8).

A hollow ovoid of white clay, sharply pointed at one end, truncate at the other. There is a large sound-hole putting the cavity of the instrument in communication with the exterior. A narrow duct runs from the closed truncate end through the wall of the whistle to the lip of the sound-hole; it has evidently been bored with a fine piece of wire or grass stem whilst the clay was still soft. There are two key-holes of narrow diameter on the opposite side to the sound-hole. Length 13·3 cm.; greatest diam. 5 cm.

Catalogue No. 990. D. J. S. Bailey, Esq. [P]. From Kabong, Saribas River.

CLASS VI.

PIPES—With single "beating" reed (Clarionet type).*

(Plate VIII fig. 13.)

I long believed that this extremely primitive form of reed instrument was non-existent in Borneo; it is true that St. John (quoted by Ling-Roth i.c. Vol. II. p. 259) describes a musical instrument in use amongst the Muruts,† which appears

* For an interesting account of wind-instruments of this class see H. Balfour "The Old British Pibcorn or Hornpipe and its affinities" (Journ. Anthropol. Inst. Nov. 1890). Mr. Balfour figures and describes reed-pipes from England, Grecian Archipelago, Egypt and India; nearly all are double pipes like the Bornean simpler instrument, but they all are probably derived from a single pipe cut from a cornstalk, reed or bamboo. Mr. Balfour's quotations from Vergil, Chaucer, Spenser and Shakespeare are very much to the point.

† "Two thin bamboos, about twelve inches long, were fastened very neatly side by side; in one was cut four holes like those in a flute, while the other had a piece of grass inserted in the lower end. A slight incision was then cut across both towards the upper portion. The performer thrust this instrument rather deep into his mouth and blew, and then, with the aid of tongue, fingers and moving the grass, produced some very agreeable and wild tunes."

to have some simple sort of vibratory apparatus, but the description is rather vague so that it is not easy to recognise the construction of the instrument from it. Recently Mr. E. W. Byrde presented to the Sarawak Museum two primitive bamboo pipes with "beating" reeds from the Land-Dyaks of Upper Sarawak and later I myself had the opportunity of seeing similar instruments played by Land-Dyaks of the Upper Sadong district. I have now no doubt that St. John's description of the Murut pipe applies to an instrument entirely similar to the Land-Dyak examples. No other tribes in Borneo but these two—Muruts and Land-Dyaks—appear to employ this instrument.

1. Land-Dyak—*Serubayi* or *Seruné*.

a. (Plate VIII fig. 13.)

Two slender tubes of bamboo bound together with a grass strapping; the proximal ends are closed by the natural septa and the wall of the tubes has been pared down for a length of about 7 centim. so as to be quite thin; a vibrating tongue (*jorah*) has been cut in this part of the wall in each tube by slitting from above downwards a slender strip) thus forming a "beating" reed; a fine hair is tied round one pipe to restrict the play of the tongue. One of the tubes, known as the *laki* or *male tube* is provided with five stops (*quayet*) about 2·6 centim. apart, the other, known as the *puan* or *female tube*, has none. The *laki* has a short length of bamboo (*tubu*) fitted over its distal end whilst the distal end of the *puan* or drone-pipe is obliquely truncated. Length of *laki* 49·1 cm.; length of drone-pipe 37 cm.

Catalogue No. 1275. E. W. Byrde, Esq. [P. 6. vii. 03.]

b. A very similar specimen, but each pipe has a short length of bamboo fitted over its distal end; length of *laki* 46 cm. length of drone-pipe 40 cm.

Catalogue No. 1276. E. W. Byrde, Esq. [P. 6. vii. 03.]

Both of these come from Krokong village, Upper Sarawak, and are known as *Serubayi*. The note of the drone-pipe is supposed to be the same as the note of the *laki* when all the stops but the fourth are closed, and in order to tune the pipes either

a length of bamboo is added to one or to both or the distal end of one is obliquely truncated, thus practically reducing its length. If in spite of these devices the pipes are still out of tune a length of grass or wood splinter (*adjok*) is pushed up the drone-pipe and moved up and down until the correct note is hit off. Mr. Byrde informs me that one of the specimens just described was cut to almost accurate lengths and required no tuning with the *adjok*.

c. Very similar to the two preceding specimens, the *laki*, however, has only four stops about 3 centim. apart, the drone-pipe is pierced with five stops but they have all been plugged up with wax. The distal ends of the pipes are cut square and are not fitted with lengths of bamboo. Length of *laki* 43.5 cm.; length of drone-pipe 38.7 cm.

Catalogue No. 1324. [Pd. viii. 03.]

From Piching village, Upper Sadong. Known as *Seruné*. The performer on this instrument tuned it by thrusting a piece of grass up the drone-pipe and moving it up and down until he hit off the correct note. As the vibrating tongues are cut at some little distance from the proximal ends of the pipes, these have to be thrust well into the mouth; a continuous blast was given by inhaling with the nostrils and blowing into the instrument with the mouth simultaneously, just as in using the chemist's blowpipe.

The Land-Dyaks of Quop, Sarawak river, also play these pipes; they always leave the proximal ends open and close them, when playing, with the tongue, the 'beating' reed is cut much closer to the proximal end than in Krokong or Sadong examples; sometimes three pipes are bound together, two being drone-pipes. A good set will be kept in a bamboo full of water, as the pipes are generally made from fresh-cut bamboo stems and when they become dry the tongues will not vibrate effectively.

CLASS VII.

MOUTH-ORGANS—with single 'free' reed. (Plate III fig. 9).

These instruments, which are figured in almost every book on Borneo, consist of a hollowed gourd with a long neck the

mouth piece of the instrument; into the gourd are set six to eight bamboo tubes, the joint being made air-tight with a luting of dammar; the tubes are closed at their lower ends but into each near its lower end * is let a small frame of *apeng* palm wood (*Arenga* sp.) or of brass with a vibrating tongue (Plate VII fig. 10); each tube has a stop and if these are not closed by the fingers no sound can be produced by blowing into the neck of the gourd; the tubes are of unequal length and are tuned by being cut more or less obliquely at their upper ends, and one is generally much longer than the others.

This form of mouth-organ seems to be essentially a Mongolian type very similar instruments being found in China (the *Seng* or *Cheng*), Japan and Siam; Hein (Die Bildenden Künste bei den Dayaks auf Borneo. Vienna, 1890 p. 116 fig. 78,) figures a Chinese *Seng*, a mouth-organ of the Mrung of India and a Kyan mouth-organ, and notes that all are constructed on essentially the same principle, he does not, however, describe the form of the vibratory apparatus in any of these instruments so it is quite possible that the Mrung mouth-organ is furnished with 'beating' reeds instead of 'free' or 'framed' reeds.

A good figure of a Kyan youth playing on a mouth-organ is given in "In Central Borneo" by Dr. A.W. Nieuwenhuis, Vol. II. pl. lxxxviii.

The instruments are played more by suction than by blowing. The Bornean tribes who use this instrument are the Kyans, Kenyahs and allied tribes, the Dusuns, Punans and the Sea-Dyaks, it is almost certain that the latter and very probable that the Punans have borrowed this instrument from the Kyans or Kenyahs.

1. Kyan—*Klerdi*.

a. (Plate III fig. 9 right hand specimen).

Of large size; six bamboo tubes open at the top are inserted into a large hole cut in a hollow gourd (*labu ayer genok*), the joint being rendered air-tight by a luting of dammar;

* i.e. in that portion of the tube inside the gourd.

the gourd has a long curved neck which forms the mouth-piece of the instrument. One of the bamboo tubes is 130 centim. long from its point of insertion into the gourd, its top is slightly obliquely truncate, its note is lower C; another is 75.5 centim. long with the top cut square and its note is lower E; a third is 75 centim. long, with note lower F; a fourth 74.6 centim. long with note lower G; a fifth is 74 centim. long but is so obliquely truncate that its functional length may be reckoned as 56.8 centim. only, its note is middle B; the sixth is very similar but its length may be reckoned at 55.2 centim. with the note middle C. The bundle of tubes is bound together by an encircling band of plaited rattan. A cap of bamboo cut from a node, with a long projecting tongue rests on the top of the longest tube, to the lower end of the tongue is attached a string tied at its other end to a plaited band of rattan that slips freely over the bundle of tubes, the outside of the cap has a frill of shavings scraped partially off it; when the cap is pulled down hard over the top of the long tube the note of that tube is rendered more resonant. Total length (in a straight line) 119.3 cm.; length of gourd (in a straight line) 23.8 cm.

Catalogue No. 1085. [Pd. 10. x. 00].

This specimen is in good working order and as it has not been dissected it is impossible to say whether the vibratory apparatus is of brass or of palm-wood. Ling Roth (l.c. vol. II p. 259) figures an almost identical specimen and gives the notes produced by it.

b. Very similar to the preceding, but in bad condition when received and it has been dissected to exhibit its construction. The gourd has a star-shaped hole cut in it to receive the tubes. One of the tubes is 72 centim. long, the rest vary between 60 centim. and 60.5 centim. two are very obliquely truncated at their top ends. The vibratory apparatus is made of *apeng* palm (*Arenga* sp.) the tongues have each a little knob on their ends (Plate VII fig. 10) to increase their range of vibration.

Catalogue No. 1246 Hon. C. A. Bampfylde. [P. 26. ii. 03].

2. Punan—*Mouth-Organ*.

The gourd of the preceding specimens is replaced by two hollowed pieces of wood, joined together with a luting of dammar and three stitches of rattan; the two halves have been shaped to form a very fair imitation of a gourd with a long neck. The usual six tubes are let into this sham gourd and luted with dammar. The longest tube measures from its point of insertion into the gourd 67.5 centim.; its top is slightly obliquely truncate and it is covered by a bamboo cap like that of No. 1085, its note is middle A flat. Three tubes are shorter their lengths varying from 46.7 centim. to 47.2 centim. their tops are cut square and their notes are middle B, middle C (not quite true) and middle D. Another measures 46.4 centim.; but it is very obliquely truncate so that its functional length may be reckoned at 34.3 centim.; its note is upper F. The sixth tube is 43.8 centim. with functional length of 33.5 centim. and note upper G. Total length (in a straight line) 72 centim.

Catalogue No. 1260. [Pd. iii. 03].

The Punans are a nomadic jungle tribe who neither plant nor sow; having probably borrowed the idea of the mouth-organ from neighbouring Kyans or Kenyahs, it was necessary to make imitation gourds of wood as they have no real gourds of their own.

3. Sea-Dyak—*Engkerurai*. (Plate III fig. 9 left hand) specimen.

Much smaller than the Kyan *klerdi*. The longest tube measures 67.5 centim. the others 44 centim. to 44.5 centim. two of these are very obliquely truncate. The bundle of tubes is bound round a central upright of wood by a band of plaited rattan. The vibratory apparatus is of brass. The instrument is not in working order. Length (in straight line) 70 cm.

Catalogue No. 61. Brooke Low collection.

The Sea-Dyak mouth-organ is generally much smaller than the Kyan one; the longest reed is usually provided with a cap of bamboo to act as resonator, but the most efficient resonator that I have seen was a small tin through the bottom of which the

long tube passed. Ling-Roth (l.c. vol. II p. 259) figures a Dyak engkerurai with seven reeds and states:—"Some of the notes appear to be FACF—F octave nearly; two holes in one reed, note unascertainable; two reeds appear to have no note [? defective vibratory apparatus. R.S.] Longest reed (one which has no note) to junction with gourd, 31 in.; diam. of gourd, $3\frac{3}{4}$ in. (Edinboro' Mus.)."

The Kenyah mouth-organ is known as *Slidap*. The Dusun mouth-organ has eight reeds set into the gourd in two rows of four, four are short and equal, four are longer and unequal, there are no stops but the fingering is performed on the ends of the four equal short pipes, the others acting as drone-pipe (cf. Ling-Roth l.c. vol. II p. 260).

There is no specimen of a Dusun mouth-organ in the Sarawak Museum.

JEWS-HARPS.

The jews-harp of the Borneans are made either of Palm wood such as *Arenga* sp. (*Aping*), *Arenga saccharifera* (*ijoh*) and *Orania macrocladus* (*ibul*) or else of brass. In all, sound is produced by causing the tongue of the instrument to vibrate, either by jerking upon a string attached to one end of the instrument or else by jarring the frame of the instrument by repeated taps with the finger. "A single note is thus produced, and, in order to gain a variety of notes, the instrument is held to the performer's mouth, which also performs the function of a resonator. To quote Sir George Grove, 'A column of air may vibrate by reciprocation with a body whose vibrations are isochronous with its own, or when the number of its vibrations are any multiple of those of the original sounding body. On this law depends the explanation of the production of sounds by the jews-harp. The vibration of the tongue itself corresponds with a very low sound; but the cavity of the mouth is capable of various alterations; and when the number of vibrations of the contained volume of air in any multiple of the original vibrations of the tongue, a sound is produced corresponding to the modification of the oral cavity.'" (H. Balfour Journ. Anth. Inst. Vol. XXXII p. 169, 1902). The Sea-Dyaks employ wooden and brass

jews-harps which are caused to sound by jerks on a piece of string attached to one end of the frame of the instrument, the other end of the frame is held between the finger and thumb of the other hand. The Dusuns employ a wooden jews-harp but play it by repeatedly striking one end of the frame with the fore finger of the right hand and the Land-Dyaks play on a brass jews-harp in the same way. The Dusun and Land-Dyak jews-harps are produced at one end to form a handle but the Sea-Dyak forms have usually no handle the instrument consisting merely of a tongue and a frame the ends of which are roughly symmetrical.

1 Sea-Dyak—*Ruding*.

a. (Plate V fig. 13, second specimen from the bottom).

Made of apeng wood (*Arenga sp.*) with the cuticle still left on the face of the instrument; the back of the instrument is longitudinally concave and the wood has been scraped down so that it is quite thin except at the ends which are thick and almost flat. The tongue is 8 centim. long its proximal half is 0.5 centim. broad, its distal half only 0.2 centim.; there is a marked 'shoulder' half way down the tongue. The frame follows the outline of the tongue. The ends of the instrument are bluntly pointed. To one end of the instrument a short piece of string with a slender wooden toggle is attached; through a hole in the other end passes a short loop of string, which is stretched taut by the third and fourth fingers of the left hand when the instrument is held ready for playing between the finger and thumb of the same hand. The instrument is contained in a small case of bamboo decorated with a phyllomorphic design in low relief with the background stained red by dragon's blood.

Total length 10.8 cm. ; breath 1.5 cm.

Catalogue No. 204. Brooke Low collection.

b. (Plate V fig. 13, third specimen from the bottom).

Very similar to the preceeding, but the ends more pointed. It is contained in a bamboo case decorated in the same way as the case of No. 204. Length 14.7 cm. ; breath 1.5 cm.

Catalogue No. 1112. [Pd. xii. 00].

2. Dusun—*Teruding*. (Plate V fig. 13 bottom specimen, and Plate VII fig. 9).

Made of *apeng* wood. It differs from the Sea-Dyak *ruding* in the following points :— i.) the back of the instrument is not concave; ii.) one end is produced to form a handle almost square in section; iii.) one half of the frame is shaved down so as to be very thin, the other half is comparatively thick; iv.) in order to give a greater range of vibration to the tongue a lump of dammar is attached to it about its middle; the peculiar shape of the tongue is shown in Plate VII fig. 9.

The cuticle of the wood is left on the handle, as a narrow transverse strip across the middle of the instrument and on the end opposite to the handle, where there also occurs a small dab of resin. The instrument is enclosed in a small bamboo case decorated with incised geometrical designs.

Length 13 cm. ; breadth 0·8 cm.

Catalogue No. 777. From Kiou, Mt. Kina Balu.

Drs. G. D. & H. A. Haviland coll. iv. 92 [P].

Ling-Roth (l. c. Vol. II p. 257) figures a similar example.

3. Land-Dyak—*Stobeong*.

a. (Plate V fig. 13 top specimen).

Jews-harp of brass. The tongue (*jorah*) and frame (*bak*) are very thin and quite flat, one end is produced to form a slightly thicker handle (*kopwong*) the opposite end is shaped and notched. The handle is well-marked off from the frame. The tongue has been smeared with lime in order to make it heavier and so to tune the instrument in accord with others.

Length 9·3 cm. greatest breath 1 cm.

Catalogue No. 1273. From Teringoo, Sarawak River.

E. W. Byrde, Esq., [P. 23. vi. 03].

b. (Plate V fig. 13 second specimen from the top).

Almost exactly similar to the preceding specimen, but end opposite to the handle cut square.

Length 9·2 cm. ; greatest breadth 1 cm.

Catalogue No. From Krokong village. Upper Sarawak.
[E. W. Byrde, Esq. P. vii. 03].

The Land-Dyaks of Quop call this instrument *traing*; the Land-Dyaks of the Upper Sadong call it *jingun*.

These instruments are made very carefully and the owner of a good specimen will not readily part with it. If the tongue, when just cut out from the frame, does not vibrate properly it is carefully filed with the cuticle of a species of bamboo and until it vibrates freely the instrument is said to have no "life" or "soul." At Krokong several men will play jews-harps in concert tuning them by smearing lime on to the vibrating tongues.

4. Sea-Dyak—*Engsulu* or *Ruding sulu*.

a. (Plate VI fig. 13 middle specimen).

Jews-harp of brass; markedly concavo-convex longitudinally, suggesting that it is derived from a wooden model. The tongue tapers to its end. One end of the frame is cut out into three points, the other end is bifurcate, and the two limbs of the bifurcation are rolled up into spirals; a loop of string passes through a hole at this end, a short string with a brass toggle attached to it passes through a hole at the other end.

Length 9 cm.; breadth 0.8 cm.

Catalogue No. 1251. From Lobok Antu, Batang Lupar.
[R. Shelford, Esq. P. 5. iv. 03]

b. (Plate V fig. 13 third specimen from the top).

Differs from the preceding specimen in being nearly flat; one end is produced to form a sort of handle but it is quite thin and flat and is fretted and cut into a pseudo-phyllomorphic pattern. The opposite end of the instrument is "stepped" and a string with a bamboo toggle is passed through a hole here. The tongue does not taper, its proximal half is twice as thick as the distal (cf. *ruding*).

Length 10.1 cm.; greatest breadth, 0.8 cm.

Catalogue No. 610. Brooke Low collection.

Ling Roth (l. c. Vol. II p. 257) figures a handled brass jews-harp but with a string attached to the frame ; it is evidently a Sea-Dyak *engsulu* but it has been wrongly named *rodiung*.

This is one of the musical instruments which Dyaks say are possessed of "*Jako*" i. e. articulate speech ; the *enserunai* is another but the *ruding* is not. The *engsulu* is played by young men and girls who are lovers ; a young man desirous of marrying a girl will, previous to matrimony, visit at night his *inamorata* in her mosquito curtains and will play to her on his jews-harp, she will reply on her jews-harp and it is said that the notes of the instruments can be translated by experts into articulate language in the form of a poem.

PERCUSSION INSTRUMENTS.

- I. Wooden resonators and harmonicums.
- II. Metal gongs.
- III. Bells.
- IV. Drums.

CLASS I.—WOODEN RESONATORS AND HARMONICUMS.

These have been superseded almost every where by metal gongs made for the most part in Java and China.

1. Land-Dyak—*Lalipok*. (Plate VI fig. 14).

These are merely portions of a bamboo joint with the wall scraped quite thin, one end is closed by the septum the other is open. The open end is knocked against some hard substance such as an ironwood post. They are played in accompaniment with the *ton-ton* (cf. ante p. 17). Length 24.2 cm. and 37 cm. diam. 5 cm. and 5 cm.

Catalogue Nos. 1297 *a* and *b*. [Pd. ix. 03.] From the Upper Sadong District.

2. Land-Dyak—*Pelonchong*. (Plate VI fig. 14).

Two pieces of bamboo joints, the walls not scraped thin but with a hole cut in one side ; one end is closed by the septum

the other is open. The instruments are beaten with a short stick to accompany the *ton-ton*. Length 49 cm. and 43 cm. diam 5 cm. and 5.2 cm.

Catalogue Nos. 1298 *a* and *b*. [Pd. ix. 03]. From the Upper Sadong district.

3. Land-Dyak—*Krotong*—Wooden harmonicum.

A set of six slabs of hard red wood (*mellobi*) ranging in length from 49 centim. to 40 centim., in breadth from 7 centim. to 5 centim., in thickness from 3.5 centim. to 1.5 centim. The notes emitted when the slabs are struck do not form a regular scale. Three slabs (*anak*) are marked at one end with a streak of white paint and these give higher notes than the three others (*endor*) which are marked with a cross. The slabs are laid on a block of soft wood or on the legs of the performer and are tapped with two sticks (*bokan*); sometimes two men play, one striking the *anak* the other the *endor*.

Catalogue No. 1280. E. W. Byrde, Esq. [P. 9. vii. 02].

This example was made at Krokong, Upper Sarawak, and was in use for many years at feasts and funerals. Brooke Low mentions similar specimens, but made also of stone in use amongst the Sea-Dyaks. Burbidge gives an account of a Kadyan “triangle or its music rather, being represented by two or three steel hatched leads which were laid across laths on the floor and beaten in time with a bit of iron” (cf. Ling-Roth l.c. Vol. II p. 263).

4. Maloh—*Tengkuang*—(Plate IV fig. 11, left-hand specimen).

A long narrow rectangular block of *tapang* wood with a scroll handle projecting from the left-hand end (upper end in the figure). It is narrower at the top (right-hand side in the figure) than at the bottom, the sides sloping in from a line just below the middle line. A deep longitudinal cavity is scooped out of the block of wood; it slopes up at either end. On one side (that seen in the figure) there is at either end a perpendicular border of phyllomorphic design carved in deep relief whilst a broad horizontal border of incised phyllomorphic design runs along the lower half of the instrument; on the other side the

two perpendicular borders consist of incised lines bounding a series of diamond shaped figures, the horizontal border is similar to that on the other side.

There are two drum sticks also of *tapang* (*Abauria excelsa*) wood ; each is bored at the top with a hole and they were once joined together by a length of string ; they are slightly decorated with incised lines but the patterns which it was intended to form have never been completed. Length 61 cm. ; breadth at top 7.5 cm. ; breadth at bottom 11 cm. ; height 22 cm. ; length of stick 24 cm.

Catalogue No. 57. Brooke Low collection.

The instrument has been figured by Ling-Roth (l. c. Vol. II p. 263.) A large block of wood shaped like a pig and hollowed out, hangs by the antimony works of the Borneo Co., at Busau, Upper Sarawak ; it is beaten to call the men to work and emits a very loud resonant sound ; it was made by a Malay.

CLASS II—METAL GONGS.

From a native point of view these are the most important of all musical instruments. Formerly certain varieties of gongs were in universal use as currency and at the present day fines levied on natives by the Sarawak Government are paid in many cases in gongs, brass ware, and old jars. The large heavy gongs known as *tawaks* are worth any thing from \$30 to \$100, not only their weight but their tone and resonance being taken into account by the appraisers. The wealth of a chief consists chiefly of gongs and jars, and his collection of the former, is if he is in prosperous circumstances, always increasing. They are played at ceremonies and festivals of every description and the noise produced by the beating of twenty or thirty gongs all at the same time can be better imagined than described. The Land-Dyaks of Quop have definite names for the different rhythms with which a series of gongs can be beaten and I have no doubt that the same is the case amongst other tribes.

The four principal varieties of gongs are :—

1. *Gongs* proper ; large shallow gongs with flat boss or none at all.

2. *Tawak*¹; large deep gongs with hemispherical boss.
3. *Chanang*; medium sized gongs with hemispherical boss, sometimes elaborately ornamented.
4. *Kromong*; small gongs with hemispherical boss, always sold in sets of seven or eight and played somewhat like a chime of bells.

All are made of brass and most are cast by a *cire perdue* process, though the older and more valuable ones have been melted and hammered into shape.

The place of origin of some specimens is extremely doubtful, but generally speaking the following may be regarded as fairly accurate:—*Gongs* proper come from China, their value is small and but few are bought by Dyaks and other natives; *Tawak* are made in Java and perhaps by Malohs, as already noted their value is considerable; *Chanang* are made in Java, in Kuching by Sarawak Malays, and in Brunei by Brunei Malays, the latter being usually highly ornamental and worth \$15 to \$25, a Javanese *Chanang* may fetch a very high price; *Kromong* were formerly made in Java but all modern specimens are made chiefly in Kuching by Sarawak Malays, modern specimens are moderate in price.

1. *Gong*. (Plate IV. fig. 12, specimen in the background) large shallow gong of (?) Chinese origin, with a flattened boss. Diam. 66 cm.; depth 8 cm.

Catalogue No. 1225. [Pd. xi. 02].

2. *Tawak* or *tetawak*. Large brass gong, said to have been made by Malohs, with large hemispherical boss and slightly raised central area. It is very deep and the sides slope in from front to back. It has been cast and then hammered. Diam. in front 60 cm.; at back 45 cm.; depth 27 cm.; thickness 0.5 cm.; weight 37 lbs.

Catalogue No. 1256. The Sarawak Government. [P. 14. iii. 03].

This specimen some years ago was deposited in Sibu fort as a pledge of good faith by a native chief but it was never redeemed ; it has been valued by Malays at \$70.

3. Brunei Malay—*Chanang naga*. (Plate VI fig. 15).

Brass gong with hemispherical boss ; the face is decorated with two dragons in bold relief and with a geometric pattern round the border and between the dragons in lower relief, the side is also ornamented with a geometric pattern in low relief. The gong is suspended by a chain with two diverging limbs, one of the links in the middle of each diverging limb is cast in the form of a bird and the junction of the diverging limbs with the main chain is marked by a similar but larger link. Diam. in front 49 cm. at back 39.4 cm. ; depth 12 cm. Total length of chain 58 cm. ; of diverging limbs 35 cm.

Catalogue No. 1268. [Pd. ii. vi. 03].

These gongs are cast by a *cire-perdue* process ; a rough model of the gong is first made in wood, over this is spread a layer of wax the surface of which is carved and tooled into the desired pattern, the wax is lifted off the wooden model in two pieces—the front and the side,—these are then joined and backed with more wax, and a mould of clay mixed with sand is built up so as to completely enclose the wax pattern, a small spout being left at one point ; the whole is then burnt in a kiln and the melted wax is poured out of the spout of the clay mould and the molten brass poured into it. A new wax pattern has of course, to be made for every gong.

The dragons certainly suggest a Chinese origin for these gongs, still the dragon is also prominent in Indonesian art so that it would be rash to dogmatize on the subject. The significance of the bird-links in the suspensory chain I have been unable to discover.

4. Sarawak Malay—*Chanang*.

Small brass gong with hemispherical boss and raised central area ; cast by *cire-perdue* process in Kuching. Diam. in front 33.9 cm., at back 30.1 cm. depth 7.8 cm.

Catalogue No. 1208. [Pd. xii. 02].

5. Sarawak Malay—*Kromong*. (Plate IV fig. 12).

A set of eight small brass gongs, each with hemispherical boss and slightly raised central area. They rest on strings fastened to the cross-pieces of a long wooden frame and are struck with two wooden beaters. Diam. of largest gong 19.6 cm., of smallest gong 17.8 cm.; all are 6.5—6 cm. deep.

Catalogue No. 1209. [Pd. xii. 02].

These *Kromong* were cast in Kuching. The process is much the same as that previously described; the wax is spread thinly over a wooden model (*chuan*) pitted all over with small depressions, the purpose of which is to give an appearance of hammer-marks; the old Javanese *Kromong* were all melted and beaten into shape and distinctly shewed the hammer-marks all over their surface, and the same appearance is simulated in the modern article. The wax is peeled off the wooden model as already described and enclosed in a mould of clay mixed with sand (*tanah balut*) with a spout for the exit of the melted wax and the entry of the molten brass. When the gongs are removed from their clay moulds they are roughly smoothed down with a file and are set in a row on a frame like that shewn in the figure, the maker then tunes them by tapping them with a hammer and finally blackens them with a mixture of copper sulphate and an extract of *lirang* a plant used also medicinally for skin diseases.

CLASS III. BELLS.

1. Brunei Malay—*Grunong*, cow-bell.

A spheroidal brass rattle flattened from side to side, cast in brass, hollow with a slit running half way round the lower border; the handle of the rattle is in the form of a bird with a ring springing from its back, on each side of the rattle is a snake in bold relief and an outstanding ring; there is a ring just above each end of the slit running round the lower border of the rattle. A small brass sphere inside the hollow of the rattle acts as a clapper.

Length (in a straight line) 9·8 cm. ; diam. 6·1 cm. \times 4·8 cm.
[Pd 6. xi. 02.]

Catalogue No. 1187.

This is the only form of bell that I have met with in Borneo with the exception of small metal rattles that are worn as ornaments (trimmings to kirtles, buttons to necklets, etc.)

CLASS IV. DRUMS.

These are used by every tribe in Borneo ; they are played with gongs at feasts and funerals.

1. Land-Dyak (Bukar sub-tribe.)—*Gehong*.

Single membrane drum made from one and a half joints of a very large species of bamboo ; the intervening septum is broken through ; one end is open, the other is closed by a diaphragm of monkey's skin (*Macacus nemestrinus*), secured by rattan in the manner shewn in fig. 1, Plate VII., the loops of rattan however being connected by a transverse double twist of rattan. Height 84 cm. ; diam. 12 cm.

Catalogue No. 1294. [Pd. viij. 03].

From Lanchang, Upper Sadong.

I noted in the rafters of the head-house (*baluh*) at Lanchang village, a very large drum known as *sabang* cut out from a tree trunk, it was at least 5 feet high and 1 foot in diameter, but I was unable to secure it for the Sarawak Museum as it was used only at head-feasts and was regarded as “*pemali*.” Similar gigantic drums are used at Krokong, Upper Sarawak.

2. Sea-Dyak—*Gendang*. (Plate III fig. 10, left hand specimen).

Single membrane drum made of a hard black wood, roughly shaped like an hour-glass, hollow throughout, the cavity in shape corresponding to the external form ; the lower end is open, the upper is closed by a skin diaphragm secured by rattan lashings and loops ; the method of lashing the diaphragm on to the drum-head is slightly different from the usual method and is

shown on Plate VIII fig. 14, the edge of the diaphragm is not doubled over, the rattan loops pass alternately over and under the encircling band *a* and then down to and round a plaited rattan band which is prevented from slipping by wedges. Below the plaited rattan band is a raised zone on which is carved in bold relief the following patterns :—

- 1.) A conventional flower *buh andu*, (*Plukenetia corniculata*).
- 2.) On each side of this a rough geometrical design, three scrolls in a square.
- 3.) An intertwined double loop pattern, *ensilup* (i. e. interlocking).

Twelve shirt buttons are let into the centre of (1), two are let into each scroll of (2) and there is one in each loop of (3). Below this zone is a circle of incised triangles, *puchok rebong* (i.e. young shoots of bamboo) and round the foot of the drum runs an incised single loop pattern. Height 18 cm.; diam. at top 13·4 cm.; diam. at bottom 20 cm.

Catalogue No. 58. Brooke Low collection.

The Sea-Dyaks of the Balau River and the Sibuyaus call this instrument *Ketubong*. I have seen specimens with a diaphragm of *Varanus* skin. The performers on this instrument and the Land-Dyak *Gehong* sat cross-legged on the ground, the drum lying across one thigh and kept from slipping by the opposite foot, and the diaphragm was beaten with the tips of the fingers and the palmar surface of one hand.

A Murut *gendang* is figured by Ling Roth (l. c. Vol. II p. 263).

3. Malay—*Gendang prang*.

(Plate III fig. 10, right hand specimen).

Double membrane drum formerly used in warfare, but now employed at festivals. It is almost cylindrical, hollow throughout and made of *mirabou* wood (*Afzelia bijuga*), it is slightly narrower in diameter at one end than at the other and its greatest diameter is across the middle. Both ends are closed with dia-

phragms of parchment, secured in the following manner :—the edge of the parchment is gripped between two strips of split rattan encircling the drum, these gripping bands are given a half-turn up, a continuous loop of split rattan is laced through holes in the double fold of parchment (formed by turning up the gripping bands) and passes to the other end of the drum to be similarly laced through holes in the diaphragm there ; the adjacent limbs of the loops are braced together by bands of plaited rattan (Plate VIII fig. 15). A small square hole is cut in the side of the drum to increase the resonance and a string sling passes through holes above and below this. Height 53 cm.; diam. at one end 22 cm. ; diam. at the other 20 cm.

Catalogue No. 1227. [Pd. 29. 1. 03].

4. Malay—*Gendang rebana*. (Plate IV fig. II right hand specimen.)

Bowl-shaped drum of *mirabol* wood, the top is closed by a diaphragm of sheep's skin, the bottom is open. Into the rim of the bottom are driven ten square wooden pegs, their free ends rest on and press against a circle of rattan round which pass the rattan loops that secure the diaphragm ; the chief function of this rattan circle and pegs is to act as an insulator, raising the drum from the ground and so increasing its resonance. The diaphragm is secured in the same way as shewn in Plate VII. fig. 1. except that the descending loops of rattan are in ten groups of four or five loops, any one group being widely separated from that on either side of it ; there are ten such groups and they correspond with the ten wooden pegs in the bottom rim of the drum ; further, the edge of the diaphragm is doubled back to cover the rattan lacing and this is kept in position by a single encircling rattan laced through it.

Immediately before use the diaphragm is tightened by pushing between it and the upper rim of the drum from the inside a circle of thick unsplit rattan, known as the *sidak* ; when the drum is not in use the *sidak* is kept coiled up inside the drum.

Height 18 cm.; diam. at top, 44·5 cm.; diam. at bottom 24·8 cm.

Catalogue No. 1246. [Pd. 28. 1. 03].

Addenda.

Since going to press my friend Mr. W. Howell has sent to the Museum a toy musical instrument used by Sea-Dyak children; as it is so very different from every other form of musical instrument found in Borneo, I cannot refrain from adding a brief description of it:—

Sea-Dyak—*Sulieng*—toy “squeaker.”

A piece of the stem of a species of *Culamus* known as *Kerniong*, 21 centim. long and 1 centim. in diameter; one end is open and cut square, the other is closed by the natural septum, a very narrow crack runs down the whole length of the instrument on one side, in fact it is so narrow as to be hardly perceptible from the outside. A blast of air driven into the tube just forces apart the sides of the crack, but they quickly close again by virtue of their elasticity and curvature. If the pressure of air is maintained they are forced open again, close again and so on; in other words the sides of the tube bordering the crack vibrate and constitute a “partial” valve through which the air issues in a pulsatory manner producing a loud and penetrating squeak. The instrument may be compared with the trumpet class though in that class the lips of the performer constitute the “partial” valve, not the walls of the instrument itself. Malays know this instrument as *seruné*, the same term as that employed by Land-Dyaks of the Bukar sub-tribe for their pipes with “beating” reeds.

Catalogue No. 1363. Rev. W. Howell [P. 6. xii. 03].

The wooden clappers used by Sea-Dyaks are also worthy of note. These instruments, which are known variously as *tongkat be-igi*, *tangkat krutak*, *tugal be-igi*, *tugal bekurong*, and *tugal klek*, are long staves of hard wood with an enlarged head, the head is hollowed out but a loose block of wood occupies part of the hollow and slides up and down when the staff is shaken; this block is cut out of the head itself, the hollowing of the head and the freeing of the block being negotiated through four longitudinal slits in the head. The staves are used as padi-dibblers, and they are carried and sounded at intervals by the

principal celebrant at that part of the religious festivals when the *Mengap* is being recited; they are also carried and rattled by any one when walking in the dark to give notice of his coming to spirits, men and animals.

Sea-Dyak—*Tongkat k'rutak*.

a. A long staff of hard wood, the lower end thickened and pointed and with an enlarged four-sided head 40.5. centim long; the angles of the head are marked by wide slits, through which the head has been hollowed out, a sliding block of wood 20 centim. long being left in the hollow. The passage of the stem of the staff into the head is sudden and is marked by a little carving and a narrow band of plaited rattan; the top of the head is crowned with a finical and a tuft of grass.

Total length 239 cm.

From the Krian River. I. Kirpkatrick, Esq. [P. 28. xiii. 96.]
Catalogue No. 999.

b. A similar specimen, but the lower end is much thicker and less pointed; the head is round in transverse section and the hollowing of it and the freeing of the sliding block has been conducted through three slits only; the rest of the staff instead of being of equal diameter throughout is marked with seven circular blunt ridges at unequal distances apart; the passage of the stem into the head is very gradual; the head has a long carved finical but no tuft of grass.

Total length 262 cm.; length of head 36.5 cm.; of sliding block 23.5. cm. From the Lamanak River. Brooke Low collection.

Catalogue No. 517.

c. Much shorter specimen, the head rather slender and without a finical, which is replaced by a stout projection; the staff is encircled by several narrow ridges some of which are carved to imitate the nodes of bamboo; there are four slits in the head.

Total length 193 cm.; length of head 38 cm.; of sliding block 12·4 cm. From the Engkari River. Brooke Low collection.

Catalogue No. 518.

Explanation of Plates I.—VI.

- Fig. 1. Two Tanjong *busoi* and *aran*, musical bows.
- Fig. 2. Sea-Dyak *enserunai*, fiddles.
- Fig. 3. Maloh *blikan*, two-stringed guitar.
- Fig. 4. Kyan *sapeh*, two-stringed guitar.
- Fig. 5. Malay *gambus*, six-stringed guitar.
- Fig. 6. Murut and Sea-Dyak *engkratong*, upright-harps.
- Fig. 7. Dusun Long Kiput and Kanowit bamboo-harps.
- Fig. 8. Murut Kanowit and Sea-Dyak bamboo flutes.
- Fig. 9. Sea-Dyak and Kyan mouth organs.
- Fig. 10. Sea-Dyak and Malay *gendang*, drums.
- Fig. 11. Maloh wooden gong and Malay drum.
- Fig. 12. Malay playing on a set of *kromong*, a large *gong* in the back ground.
- Fig. 13. Dusun Land-Dyak and Sea-Dyak jew's-harps.
- Fig. 14. Land-Dyak *ton-ton*, bamboo-harps, *lalipok* and *pelon-chong*, bamboo resonators.
- Fig. 15. Brunei Malay *chanang naga*, ornamental gong with suspensory chain.

Explanation of Plate VII.

- Fig. 1. Diagram illustrating the method by which a skin dia-phragm is fastened over a resonator of a fiddle or over a drum. The skin is tightly stretched over the mouth of the resonator and tied with a string (*a*), the edge of the skin is then turned up and through the double fold so formed is laced a continuous loop of split rattan (*b*); the lower ends of the loops pass

round a band of plaited rattan (*c*) encircling the resonator at the lower level; wedges (*d*) are driven between this band and the resonator to make all taut.

This method of securing drum-heads and diaphragms is common all through the Malay Archipelago: I have seen a drum from Timor in the Raffles Museum, Singapore, the diaphragms of which are fastened in identically the same way as this.

- Fig. 2. Portion of head of stem of Sea-Dyak *enserunai* showing method of attachment of string. (cf. p. 7)
- Fig. 3. ditto. (cf. p. 7)
- Fig. 4. ditto. (cf. p. 9)
- Fig. 5. Portion of stem of Maloh *blikan* (cf. p. 12)
- Fig. 6. Dusun guitar $\times \frac{1}{8}$ (cf. p. 11)
- Fig. 7. Land-Dyak *sigittuad* $\times \frac{1}{6}$ (cf. p. 9)
- Fig. 8. Sea-Dyak *penyipu*, clay whistle $\times \frac{1}{2}$ (cf. p. 33)
- Fig. 9. Dusun *teruding*, bamboo jew's harp, seen in profile with the tongue elevated. Nat. size. (cf. p. 43)
- Fig. 10. Bamboo "reeds" of a Kyan mouth-organ. Seen in face and in profile.

Explanation of Plate VIII.

- Fig. 1. Proximal end of Sea-Dyak *sulieng san*-transverse flute (semidiagrammatic).
- Fig. 2. Proximal end of a nose-flute (semi-diagrammatic.)
- Fig. 3. Proximal end of Sea-Dyak *sulieng nyawa*. Flageolet with outside duct (semidiagrammatic).
- Fig. 4. Proximal end of Land-Dyak *telarli*. Flageolet with outside duct (semidiagrammatic).
- Fig. 5. Diagrammatic longitudinal section of above.
a. sound-hole.
- Fig. 6. Proximal end of Land-Dyak *kroto*. Flageolet with outside duct (semi-diagrammatic).
- Fig. 7. Proximal end of Murut flageolet with outside duct (semidiagrammatic) *a*, luting of dammar; *b*, fragment of leaf stuck on the edge of the sound-hole.

Fig. 8. Diagrammatic longitudinal section of above.

Fig. 9. Kyan *bulo wok*, bird-call $\times \frac{1}{2}$

Fig. 10. Diagrammatic longitudinal section of Sea-Dyak *hum-bun*, bird-call, *a*. bamboo tube; *b*. wooden upright; *c*. septum of bamboo joint; *d*. sound-hole.

Fig. 11. Proximal end of Sea-Dyak *sulieng nyawa*. Flageolet with inside duct. (semidiagrammatic).

Fig. 12. Diagrammatic longitudinal section of above.

Fig. 13. Land-Dyak *serubayi*, pipes with 'beating' reeds. $\times \frac{3}{4}$.

Fig. 14. Method of attachment of diaphragm in Sea-Dyak *gendang* (cf. p. 50) — diagrammatic. *a*. encircling band of rattan.

Fig. 15. Method of attachment of diaphragms in Malay *gendang prang* (cf. p. 51) — diagrammatic. *aa*. gripping bands of rattan. The limbs, *bb*. of the loops are braced together by bands of plaited rattan not shewn in the drawing.

Addenda II.

A very simple form of wind-instrument was quite recently presented to the Sarawak Museum and is briefly described below:—

Land-Dyak—bashi.

This is a length of a large species of bamboo with a large circular hole cut in each internode (seven in number), the holes facing different directions. The instrument is fastened at the top of a high tree and the wind blowing across one, or perhaps more, of the holes makes a loud howling noise.

From the village of Quop.

Total length 311.5 cm. ; diameter 5.7 cm.

Rev. F. W. Nichols [P]

Catalogue No. 1384.

Sometimes rather a different instrument is in use; one internode only of bamboo is employed and a large hole is cut in it, the internode spins (vertically) on a pivot and is fitted with a vane so that the sound-hole is always turned at the right angle to the wind from whatever direction it may blow.

The bull-roarer can hardly be omitted from a catalogue of musical instruments, even though the specimen described below was used, like the bull-roarers of the Malay Peninsula, merely as a scarecrow. A popular account of the bull-roarer is given by Dr. A. C. Haddon in his book "The Study of Man" pp. 277-327 and some remarks on the relationship between the bull-roarer and other wind-instruments are given by Mr. H. Balfour in a recent number of the Journal of the Anthropological Institute (Vol. XXXII. pp. 173, 174.)

Narom—bull-roarer.

A flat piece of wood shaped something like a spear-head, 27.2 cm. \times 6.1 cm. ; both ends are sharply pointed, but at one end are two projecting "ears," a string passes through a hole

at this end and serves to attach the piece of wood to a wooden stick, 85 cm. long.

D. A. Owen Esq. [P. 24. v. 01].

Catalogue No. 1121.

Dr. C. Hose first discovered the bull-roarer in Borneo in a Kenyah house up the Tinjar River, Baram district and was told that it was used to scare birds off the *padi* fields; Dr. Hose bought the unique specimen and subsequently showed it to some Narom, a tribe living near Claudetown, Baram River; the Narom stated that they were well acquainted with the instrument and frequently used it; they made several specimens to order, one of which is that described above. The Narom constitute a tribe that falls into the Kalamantan division according to Drs. Haddon and Hose—and so may be considered as amongst the most primitive tribes of Borneo.